

## **CLAIMS**

1. An antenna for emitting substantially hectometric waves, characterized in that it comprises an  
5 existing vertical structure (1) having a height of at least approximately ten meters and including at least one electrically conductive member (3) connected to the ground (T), and electromagnetic excitation wire means (4a, 7a) that is essentially electrically conductive, disposed at least in part in the vicinity of and outside the structure and connected to an emitter (E) so that the 10 structure radiates substantially hectometric waves.

2. An antenna according to claim 1, wherein the  
15 excitation means comprises a conductive excitation wire (4a) substantially extending at least partly outside and along the structure (1).

3. An antenna according to claim 2, wherein the  
20 conductive wire (4a) has a first end (41a) connected to the emitter (E) via impedance matching means (5) situated substantially in front of the base of the structure (1) and a second end (42a) fixed to the structure (1).

25 4. An antenna according to claim 3, comprising a grounding network (11) consisting of conductive wires or strips disposed in a star arrangement and connected to the matching means (5).

30 5. An antenna according to claim 2, wherein the first end (41d) of the excitation wire (4d) is connected to the emitter (E) via a variable length conductor (43d) serving as impedance matching means.

6. An antenna according to any of claims 2 to 5, wherein one end (42a) of the excitation wire (4a) is fixed to the structure (1) via an electrical insulator (6).

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7. An antenna according to any of claims 2 to 5, wherein one end (42b, 42e) of the excitation wire is connected to the conductive member (3) of the structure (1).

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8. An antenna according to any of claims 2 to 5, wherein one end (42d) of the excitation wire (4d) is connected to the structure (1) via a conductor (44d) movable along the conductive wire and serving as impedance matching means.

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9. An antenna according to any of claims 2 to 5, wherein one end (42f) of the conductive wire (4f) is connected to the conductive member (3) of the structure (1) through a load (44f).

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10. An antenna according to any of claims 2 to 5, wherein one end (42j) of the excitation wire (4j) is connected to a terminating capacitive load (44j) consisting of turns of conductive wire around the structure (1).

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11. An antenna according to any of claims 2 to 5, wherein one end (42k) of the excitation wire (4k) is fixed to the structure (1) through an insulator (6k) and supports one or more deployed conductive wires (45k).

12. An antenna according to any of claims 2 to 5, wherein the excitation wire comprises a first portion

(4m1) extending along the structure (1) and a second portion (4m2) extending in a conductive sheath (44m) situated inside the structure (1) to constitute a coaxial terminating capacitor whose length is substantially equal to that of the first portion (4m1) of the excitation wire.

13. An antenna according to any of claims 2 to 12, wherein the excitation wire comprises two wires (4i, 4j) in line with each other and separated by a band-pass filter (44i).

14. An antenna according to claim 2, wherein the excitation wire comprises two aligned conductive excitation wires (4c) running along the structure (1) and having near ends connected by an insulator (61) and fed by the emitter (E) through a power balancer (52).

15. An antenna according to any of claims 2 to 14, wherein the excitation wire is replaced by a conductive tube or a cage including a plurality of parallel conductive wires.

16. An antenna according to claim 1, wherein the excitation means comprises a conductive loop (7a) that is situated above the ground (T) and outside and near the structure (1).

17. An antenna according to claim 16, wherein the conductive loop (7a) extends in a substantially vertical plane and has one side substantially parallel to the structure (1).

18. An antenna according to claim 16 or claim 17,

wherein the conductive excitation loop (7a, 7c) is situated substantially at the level of the base or the middle of the structure (1).

5           19. An antenna according to any of claims 16 to 18, wherein the excitation loop (7a) has a perimeter of a few meters.

10          20. An antenna according to claim 1, wherein the electromagnetic excitation means comprises a plurality of conductive excitation wires for different frequency bands according to any of claims 2 to 15 and/or a plurality of conductive loops for different frequency bands according to any of claims 16 to 19.

15          21. An antenna according to any of claims 1 to 20, comprising other, non-excited wire means (8), disposed substantially along the structure (1) and having one end (82) isolated from the structure and another end (81) loaded by a reactor (83) connected to ground.  
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